

19. Derive the plausible mechanism of the following reactions.
- (a) Baeyer-Villiger oxidation (5)
- (b) Von-Richter rearrangement (5)
20. Enlist the principle and applications of the following purification process:
- (a) Thin layer chromatography (5)
- (b) Steam distillation of organic compounds (5)
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APRIL/MAY 2023

DCH41 — ORGANIC CHEMISTRY - IV

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Write the acylation of enamine reaction.
2. What is mean by reversal of polarity?
3. Draw the structure of any two sesquiterpenes.
4. How is the presence of phenanthrene moiety in morphine confirmed?
5. Highlight on methods of N-terminal analysis of proteins.
6. What are the key intermediates involved in biosynthesis of cholesterol?
7. Write the key features of Demjanov rearrangement.
8. Give an example for Wagner-Meerwein rearrangement reaction.



9. Mention the principles of ion-exchange chromatography.

10. What is mean by azeotropic distillation? Mention one application of it.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) What are ylides? Describe the reactions of phosphorous and sulfur ylides.

Or

(b) Explain various methods of protection of R-OH and R-NH₂ groups.

12. (a) Explain the structural elucidation of citral.

Or

(b) How are alkaloids isolated from the natural resources?

13. (a) Highlight the solid-phase synthesis of peptides and list few advantages of the method.

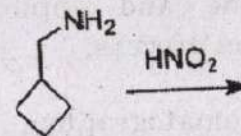
Or

(b) Explain the biological functions of nucleic acids.

14. (a) Explain pinacol-pinacolone rearrangement using plausible mechanism.

Or

(b) Predict the product and explain with a suitable mechanism.



15. (a) Discuss the working principle and application of HPLC.

Or

(b) What is mean by vacuum distillation? Sketch and explain the process.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the reaction mechanism for below reaction: (a) Grignard reaction (b) Diels – Alder reaction (c) Robinson annulation

17. Describe the total synthesis of morphine.

18. (a) Explain biosynthesis of proteins with a suitable example. (5)

(b) Highlight the structural features of DNA. (5)